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Outlook

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Bootlegging Flag to the Moon

Breach of Discipline on Surveyor Violated International Space Policy

By Joshua Lederberg

Science and Man

A NEWS DISPATCH has disclosed that Surveyor, the spacecraft which soft-landed on the moon, carried an American flag. It was smuggled aboard in a hollow tube at the direction of Sheldon Shallon, chief scientist for the project at Hughes. It is sad to note that this news item has not been followed by another—one denying the accuracy of the first or one reporting strong disciplinary measures on the part of the National Aeronautics and Space Administration.

Does this appear a strong response to a patriotic gesture? What harm could it have done?

The outstanding success of the Surveyor mission is one of the milestones of space exploration. It has returned an abundance of photographs of very fine quality and scientific importance which open the door to photo-reconnaissance of the moon and of planetary surfaces. The real-time reception and monitoring of Surveyor's descent onto the moon and the direct release of the photographs to television viewers was an epochal event. It was more dramatic as fact than any of the science fiction of thirty years ago which might have anticipated it. It represents the utmost of intricate technological accomplishment.

IN SUCH A COMPLEX process, many people are involved at every step, and there are bound to be as many private judgments about short cuts and improvements. These may, of course, be valuable as suggestions, but can hardly be tolerated for implementation without careful engineering review at the system level. This discipline requires constant inspection, and above all, the most rigorous attitude on the faithful following of the blueprint specifications.

In this light, the patriotic prank should be deplored if only for its demoralizing effect on this discipline. In turn, it can only demoralize other countries' confidence in the U.S. control of its space program. This lack of confidence may also spill over to other technology of world significance.

The actual success of Surveyor I defeats any argument that the added item eroded the mission, but as trivial as it was, there are many ways in which an innocent flag might have spoiled adequate control of vibration, temperature, attitude, communications or other delicately interconnected functions. How many other space failures which did take place might be traced to human caprice less readily admitted?

The planting of a flag is also a political act, in the larger system of which the space mission is a part. Again, this time it was presumably harmless, but can such a matter be left to a private judgment?

ABOVE ALL, the bootlegged flag is an actual violation of an important aspect of international space policy for the protection of the moon and planets against avoidable contamination with earth organisms. At present, by fairly general agreement, the standards for the moon are relaxed by comparison with the planets and neither the United States nor the U.S.S.R. attempts perfect sterility of lunar missions.

The reason for this relaxation is that present scientific knowledge argues strongly against the capacity of the moon's surface to allow the propagation of any form of earthly life. However, NASA policy requires "minimum contamination" so that the moon can remain a useful preserve for the detection of any life that might be transported by, say, meteorites. This calls for "clean room" standards during the assembly of spacecraft components.

A bootlegged flag which could not have been subjected to such control for decontamination is a clear violation of a policy to which this country's honor has been attached and calls for strenuous disciplinary measures to insure the integrity and credibility of purpose of our future exploratory missions.

If we do not repair this gap of discipline in our exploration of the moon, how can we persuade other countries who compete for priority in space to join us in the restraint needed to protect the planets against even more serious intrusions in the future?

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His column will appear weekly in this section.